Case Report

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Squamous Cell Carcinoma of the Scrotum

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Key Words

Squamous cell carcinoma

Scrotum

Psoralen and ultraviolet A radiation therapy

Abstract

A patient with psoriasis was found to have a large skin tumor on his scrotum. He had received psoralen and ultraviolet A radiation therapy to control psoriasis. Histopathologic study revealed that the tumor was a well-differentiated squamous cell carcinoma. We present this rare case and suggest that the genitalia be shielded during ultraviolet therapy.

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Introduction

Carcinoma of the scrotum is a relatively rare and declining disorder, with an estimated annual incidence of approximately 0.1-0.3 cases/100,000 men in the UK [1,2]. The highest reported incidence of scrotal carcinoma in England was in the industrialized areas of Lancashire and Yorkshire, where the cotton and engineering industries have been dominant until recently. The decline in incidence of this disease not only reflects the decline of these industries and therefore exposure to carcinogens, but also better hygiene and shelter from exposure [3]. In the USA and Japan, malignant tumors of the scrotum are much rarer. Recently, we encountered a case of squamous cell carcinoma of the scrotum, following treatment with psoralen and ultraviolet A radiation (PUVA) therapy for psoriasis.

Case Report

A 73-year-old man complained of a tumoral skin lesion on the left side of his scrotum that had been present for 6 months. The patient had had a history of chronic psoriasis for more than 20 years and had initially been treated with PUVA therapy, during which time he inconsistently shielded his genitalia from exposure. The total amount of UVA radiation was thought to be more than 2,000 J/cm². Topical and systemic corticosteroids had also been part of his previous treatment.

During the last 5 years, psoriasis had been well controlled without any therapy. He was a farmer and denied exposure to coal tar, asbestos or other carcinogens. The patient had a smoking history of greater than 30 pack-years but no history of skin cancer.

On physical examination, a raised, mobile tumor measuring $45 \times 35 \times 15$ mm was noted on the left side of the scrotal skin (fig. 1). There was also a shallow ulceration with large amounts of seropurulent discharge. The right side of the scrotum and the penis were normal. On both sides, small discrete inguinal lymph nodes were palpable, firm in consistency and not tender. The remainder of the examination was unremarkable.

Microscopic examination of a skin biopsy specimen revealed a neoplastic process arising from the epidermis (fig. 2). Within the dermis, well-defined strands of atypical keratinocytes were present. Within these strands, horn pearls or pseudo horn pearls composed of concentric layers of squamous cell showed generally increasing keratinization toward the center. The invading tumor strands were composed in varying proportions of normal squamous cells and anaplastic squamous cells. Atypicality expressed itself as a variation in the size and shape of the cells, in hyperplasia and hyperchromasia of the nuclei and in the absence of intercellular bridges. There was a prominent actinic elastosis in the upper dermis.

The histopathologic findings were consistent with a diagnosis of well-differentiated squamous cell carcinoma. The left scrotum

was excised and left orchidectomy was performed without further complication.

Discussion

Squamous cell carcinoma of the scrotum seems to be the first cancer that was directly linked with a specific occupation. In 1775, Percivall Pott noted a high incidence of this lesion in chimney sweepers [4]. Besides chimney sweepers, workers in other industries, such as paraffin or shale oil workers, mule spinners, machine operators and lathe workers, were also reported to be at risk for scrotal malignancy [5]. Although the disease was not rare during the Industrial Revolution, it is now most uncommon.

PUVA has recently been shown to increase the incidence of both penile and scrotal malignancies, and psoriasis patients treated with PUVA have a dose-dependent increase in the risk of squamous cell carcinoma on all parts of the body exposed during therapy [6]. Dermal actinic degeneration in our case indicates the result of UV exposure rather than of age. The risk of squamous cell carcinoma of the genitalia was 5-15 times that of other parts of the body at similar dose levels. Stern et al. [7] put forward that the risk of invasive squamous cell carcinoma of the genitalia among men exposed to high-intensity PUVA is nearly 300 times that of the general population.

Human papillomavirus (HPV) infection might be another factor in the development of

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Fig. 1. Squamous cell carcinoma of the scrotum.
 Fig. 2. Invading strands of well-differentiated squamous cell carcinoma with horn pearl formation. Hematoxylin-eosin. ×

120.

scrotal cancer. Recently, Burmer et al. [8] documented three different HPV types using the polymerase chain reaction in distinct anatomical areas. The scrotal carcinoma was associated with HPV type 18, while areas of dysplasia contained either type 18, 16 or 6/11. They emphasized the importance of diagnosing HPV in patients with psoriasis, although further data are needed to confirm whether there is any association between HPV infection and scrotal cancer.

In conclusion, a patient with squamous cell carcinoma of the scrotum, who had been treated with high doses of PUVA for disseminated psoriasis, was described. Thousands of people expose themselves daily to UVA and/or UVB radiations for therapeutic or esthetic reasons. We suggest that the genital area should be shielded during UV therapy.

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